



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Pacific Seed Production Company

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (ACT NO. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SWEET BROMEGRASS

'Deborah'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 30th day of December in the year of our Lord one thousand nine hundred and eighty-two

Attest:

Kenneth H. Coans
Acting
Commissioner
Plant Variety Protection Office
Grain Division
Agricultural Marketing Service

John R. Block
Secretary of Agriculture



APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions on reverse)

To certificate for, plant variety protection may be issued unless a completed application form has been received (5 U.S.C. 53).

1. NAME OF APPLICANT(S) PACIFIC SEED PRODUCTION COMPANY		2. TEMPORARY DESIGNATION 6/28/82	1. VARIETY NAME DEBORAH
4. ADDRESS (Street and No. or R.F.D. No., City, State, and Zip Code) 121 S.W. 2nd, PO Box 1141, ALBANY, OREGON 97321		6. PHONE (Include area code) (503) 928-5868	FOR OFFICIAL USE ONLY VPO NUMBER 8200096
6. GENUS AND SPECIES NAME Bromus carinatus	7. FAMILY NAME (Botanical) Gramineae		FILING DATE 4/12/82 TIME 12:15 <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.
8. KIND NAME SWEET BROMEGRASS	9. DATE OF DETERMINATION 1972		FEES RECEIVED AMOUNT FOR FILING \$ 500.00 DATE 4/12/82 AMOUNT FOR CERTIFICATE \$ 250.00 DATE 11/22/82
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) PARTNERSHIP			12. DATE OF INCORPORATION December 2, 1980 6/28/82
11. IF INCORPORATED, GIVE STATE OF INCORPORATION OREGON			
13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS As above			

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

- a. Exhibit A, Origin and Breeding History of the Variety (See Section 52 of the Plant Variety Protection Act.)
- b. Exhibit B, Novelty Statement
- c. Exhibit C, Objective Description of the Variety (Request form from Plant Variety Protection Office.)
- d. Exhibit D, Additional Description of the Variety

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See Section 83(u) of the Plant Variety Protection Act.) Yes (If "Yes," answer items 16 and 17 below) No.

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? Yes No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? Foundation Registered Certified

18. DID THE APPLICANT(S) FILE FOR PROTECTION OF THE VARIETY IN THE U.S. OR OTHER COUNTRIES? Yes (If "Yes," give names of countries and dates) No

no foreign applications 6/28/82

19. HAVE RIGHTS BEEN GRANTED IN THE U.S. OR OTHER COUNTRIES? Yes (If "Yes," give names of countries and dates) No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT David J Hayes (DAVID J HAYES) President	DATE 6th April 1982
SIGNATURE OF APPLICANT	DATE

INSTRUCTIONS

General: Send an original copy of the application and exhibits, at least 2,500 viable seeds, and \$500 fee (\$250 filing fee and \$250 examination fee) to U.S. Department of Agriculture, Agricultural Marketing Service, Livestock, Meat, Grain and Seed Division: Plant Variety Protection Office, National Agricultural Library Building, Beltsville, Maryland 20705. (See section 180.175 of the Regulations and Rules of Practice.) Retain one copy for your files. All items on the face of the form are self-explanatory unless noted below.

Item

- 9 Give the date the applicant determined that he had a new variety based on (1) the definition in section 41(a) of the Act and (2) the date a decision was made to increase the seed.
- 14a Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method; (2) the details of subsequent stages of selection and multiplication; (3) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified and (4) evidence of uniformity and stability.
- 14b Give a summary statement of the variety's novelty. Clearly state how this novel variety may be distinguished from all other varieties in the same crop. If the new variety most closely resembles one or a group of related varieties: (1) identify these varieties and state all differences objectively; (2) attach statistical data for characters expressed numerically and demonstrate that these differences are significant; and (3) submit, if helpful, seed and plant specimens or photographs of seed and plant comparisons clearly indicating novelty.
- 14c Fill in the Exhibit C, Objective Description form, for all characteristics for which you have adequate data.
- 14d Describe any additional characteristics that are not described, or whose description cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the description of characteristics that are difficult to describe, such as plant habit, plant color, disease resistance! etc.
- 15 If "Yes" is specified (seed of this variety be sold by variety name only as a class of certified seed) the applicant may NOT reverse his affirmative decision after the variety has either been sold and so labeled, his decision published, or the certificate has been issued. However, if the applicant specified "No," he may change his choice. (See section 180.16 of the Regulations and Rules of Practice.)
- 16 See section 42 of the Plant Variety Protection Act and section 160.7 of the Regulations and Rules of Practice.

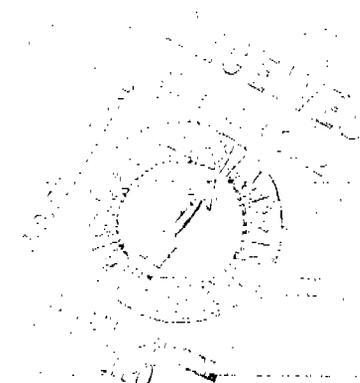


EXHIBIT A AMENDMENT

Origin and Breeding History

Origin

Deborah is derived from two ecotypes of *Bromus carinatus*, one originating in the Andes in South America, and one in the Thames valley in the United Kingdom.

Breeding Method

Individual plants were examined for agronomic value and a polycross made of selected plants. Plants established from this cross were selected for trueness to type of the following criteria, and kept as parental materials.

Improvement over wild: type

- a) more leaves per culm)) Leading to a greater leaf/stem ratio
- b) wider leaves)
- c) more tillers per plant
- d) greater uniformity
- e) shorter internodes

Multiplication

Breeders seed is produced from the parental clones every four years, and marketable seed is the fourth generation.

Uniformity and Stability

No significant variants have been found. Deborah has completed voluntary tests at the National Institute of Agricultural Botany at Cambridge and been studied through several cycles at Dunns breeding grounds. All results have shown a high degree of stability, well above what is normally expected from outbreeding crops. All testing and seed

Production indicates that the variety is totally uniform.

8/19/82

EXHIBIT B AMENDMENT

Data indicative of Novelty

Deborah is a member of the Bromus carinatus species. It is improved over unbred carinatus material in a number of characters as follows:

- 1) It has more leaves per culm.
- 2) The leaves are wider. These two characters contribute towards its higher leaf/stem ratio.
- 3) It is more uniform than unbred material.
- 4) It has more tillers per plant.
- 5) It is shorter than unbred ecotypes, the difference being due to a shorter internode immediately below the panicle. The variety yields better than the wild type.
- 6) It retains the characteristically high protein content of Bromes species and also has a higher sugar content than is usual in bromes, hence the common name we have attributed to it of Sweet Bromegrass.
- 7) It maintains its digestibility for a considerable period after ear emergence, thus producing a very bulky, but highly digestible crop.

The objectives of the breeding programme were to produce a quickly establishing highly digestible variety with good fodder and seed yields, and drought resistance, The variety provides a nutritious, highly palatable, alternative to orchard grass.

'Deborah' is a distinct and unique variety within the Bromus carinatus - Bromus marginatus complex. It may be distinguished from the variety Cucamonga in the following character:

Persistence - Cucamonga is described in the Manual of the Grasses of the United States by A. S. Hitchcock as an erect annual or mostly biennial; and the U. S. Handbook 170 describes it has a self-perpetuating winter annual tested in comparison with other annual grasses. Deborah is a full perennial persisting for 3-5 years and often longer.

'Deborah' has green spikelets; whereas *'Cucamonga'* has purple spikelets. Deborah may be distinguished from the variety Bromar in the following character:

Bromus marginatus 9/08/82
 Lemma - ~~Bromar~~ is described as having lemmas more strongly pubescent than ~~commercial strain~~ Bromus carinatus. Deborah has glabrous lemmas, and is described as such in the technical questionnaire Exhibit C.

Bromus marginatus 9/08/82
 Leaf-Sheaths - ~~Bromar~~ is described as having leaf-sheaths which are retrorsely pilose, while Deborah has pubescent leaves.

'Deborah' has drooping leaves; whereas the leaves of *'Bromar'* are ascending. 9/08/82

These are the only known varieties in this complex. 8/19/82

6. FERTILE CULMS* (Same plants as Section 5. FERTILE CULMS--at seed ripe stage)

Diameter: 1 = fine (Carlton) 2 = medium (Lincoln) 3 = coarse (Sac)

140 cm height from soil to mean level of panicle tips. cm shorter than standard variety

11 cm length of internode below flag leaf. cm shorter than standard variety

Pubescence at nodes: 100% plants glabrous % plants pubescent

070 cm leaf elevation* (stem length from soil to ligules of flag leaves). cm lower than standard variety

8 Number of leaves/culm* (between expanded internodes)

7. LEAF (Leaf below flag leaf): (on FERTILE CULM at heading date)

1 Attitude: 1 = drooping (Carlton) 2 = ascending () 3 Color: 1 = light green (Mandan 404) 2 = medium green (Saratoga) 3 = dark green (Achenbach)

2 Anthocyanin formation: 1 = absent 2 = slight 3 = strong 2 Waxy bloom: 1 = absent 2 = slight 3 = strong

Leaf pubescence: (indicate percentage of PLANTS with each type.)

000 glabrous 025% only lower leaf% pubescent all pubescent

20 mm maximum width. mm narrower than standard variety mm wider than standard variety

8. PANICLE: (at seed ripe stage)

1 Shape*: 1 = drooping (Lancaster) 2 = spreading (Lincoln) 3 = ascending* () 1 Density: 1 = lax () 2 = medium () 3 = compact ()

28 cm rachis length (from basal panicle node to tip of terminal spikelet)* cm shorter than standard variety cm longer than standard variety

9. SEED (Lemma of freshly harvested mature seed):

1 Color: 1 = green (Southland) (Achenbach) 2 = pale purple (Carlton) 3 = dark purple (Manchar)

Lemma pubescence: (indicate percentage of each type)

100% glabrous 000% slightly pubescent 000% strongly pubescent

14 mm lemma length. mm shorter than standard variety mm longer than standard variety

Presence of awns (small awnlets 2 - 4 mm in length): (indicate percentage of plants)

000% plants totally lacking awns 100% plants with awns

10. DISEASES AND PESTS: (0 = not tested, 1 = susceptible, 2 = resistant)

- BROWN SPOT (Pyrenophora bromi) CHOCOLATE SPOT (Pseudomonas coronafaciens var. atropurpurea) LEAF SPOT (Selenophoma bromigena) LEAF BLOTCH (Stagonospora bromi) SCALD (Rhynchosporium secalis) POWDERY MILDEW (Erysiphe graminis)

IO, DISEASES AND PESTS (Cont'd): (0 = not tested, 1 = susceptible, 2 = resistant)

2 ERGOT
(*Claviceps purpurea*)

0 ROOT ROT
(*Helminthosporium sorokinianum*)

0 ROOT ROT
(*Pvthium graminicola*)

0 ROOT ROT
(*Rhizoctonia salani*)

1 OTHER
(Specify) Frit Fly

OTHER
(Specify) _____

II. INDICATE THE VARIETY THAT MOST CLOSELY RESEMBLES THE APPLICATION VARIETY FOR THE FOLLOWING CHARACTERS:

CHARACTER	VARIETY	CHARACTER	VARIETY
Leafiness	Bromus wildenowii var. Lubro	Leaf Color	Lubro
Spread	Lubro	Tillering	L u b r o
Persistence	Saratoga	Winter Hardiness	Saratoga
Drought Tolerance	Lubro	Summer Dormancy	Lubro
Seed Yield	Delta	Regrowth	D e l t a

*EXPLANATORY NOTES

Mature culms are referred to as STERILE (*non-panicle-bearing*) and FERTILE (*seed stalks*) to differentiate from immature "vegetative" culms which cannot be so distinguished. Strain types differ as to PROPORTION OF MATURE CULM TYPES, ratio of height of culm types, and mean distance between leaves. Components of these traits are measured at SEED RIPENING (*panicle browning*) so that mature sterile culms can be identified. HEIGHT TO MEAN LEVEL OF UPPERMOST CULM TIPS defines the "horizon" naturally formed by the tips of the culms, and can be measured without disturbing the plant. Some traits are morphological components of performance characters: STERILE CULMS produce no seed and more leaves. PROPORTION OF MATURE CULM TYPES is an important genetic trait known to be affected by environmental extremes. Do not submit results known to be atypical. Data are most reliable when compared to a check variety. NUMBER OF LEAVES/CULM and LEAF ELEVATION together indicate the mean distance between leaves. LEAF ELEVATION indicates availability of leaf for harvest and general plant "leafiness". In some cases individual plants exhibit a trait which is not known to be typical of any variety totally; e.g., ASCENDING PANICLE SHAPE in the variety 'Magna'. Some example varieties (*in parentheses*) may be obsolete; we welcome the suggestion of replacements from any reliable source.

REFERENCE:

Zherebina, Z. N. 1931. Essay of a botanikal-agronomical study of awnless brome grass (*Bromus inermis* Leyss.), Bulletin of Applied Botany (*Leningrad*) 25(2): 203-352.

OTHER:

Lamp, H. F. 1952. Reproductive activity in *Bromus inermis* in relation to phases of tiller development. Bot. Gazette 113: 413438.

Lowe, C. C., et al. 1960. A regional approach to breeding and evaluation of smooth brome grass for use and adaptation in the northeast. Cornell Univ. Agric. Exp. Sta. Bull, 964.

Walton, P. D. and C. Murchison. 1979. A plant ideotype for *Bromus inermis* Leyss. in western Canada. Euphytica 28: 801806

COMMENTS

7a) Although Deborah's leaves are pubescent the majority of the hairs occur around the ligule and leaf sheath, and the hairs are very small. The foliage is most palatable, being very sweet and digestible, and no acceptability problems are caused by the presence of the hairs.

9b) The freshly harvested seed is a yellowish-brown colour.

11) Leafiness is better than Lubro. Drought tolerance is excellent. Seed yield is outstanding at 2.2 tonnes/ha.

EXHIBIT D

Botanical Description of the Variety

Deborah is derived from naturally occurring octoploid *Bromus carinatus* with a chromosome number of 56.

Seedlings

The seed is large (thousand grain weigh% is around 10/11 grammes) and strongly awned. The seed may be dormant for around three months after harvest, depending on conditions during harvest, but this dormancy can be broken by cold treatment. On germination, anthocyanin production in the coleoptile is strong but this lessens as the plant establishes and the overall colour of the unstressed, mature plant is greyish-green.

Mature Plant

6/28/82
Tillers are elliptical with developing leaves rolled in the sheath. It produces densely tufted plants; ^{erect} erect in growth habit with long, broad leaves. The leaf/stem ratio is high compared to other Brome species. Deborah is neither rhizomatous nor stoloniferous. The flowering panicle is lax and drooped, and heading and seed maturity are uniform. The variety retains its green colouration late into maturity. A few heads may be formed in the aftermath after cutting.

~~Deborah is the only named, bred variety of *Bromus carinatus* and therefore comparison with commercial varieties of the same species is not possible.~~

6/28/82

Table 3. Dry matter yield (t/ha) and D value of primary growth. Site 2 1977.

Variety	Yield				23 May	D value			Relative Ear Emergence
	23 May	2 Jun	13 Jun	28 Jun		2 Jun	13 Jun	28 Jun	
Deborah	4.9	7.0	9.4	11.4	69	68	65	61	+ 11
S 24	5.9	8.4	9.3	10.3	71	63	63	59	0=26 May
Barstella PRG	-	8.6	8.7	12.3		67	63	62	+ 8
Animo PRG		7.3	7.8	10.2		72	67	62	+ 14
Scots timothy	5.1	7.5	7.8	10.9	68	66	63	59	+ 19

Table 4. Dry matter yield (t/ha) and D value from a 2-cut system. Site 1 1976.

Variety	Yield			D value		Weighted D value	Yield		Total Yield	D value		Weighted D value
	(i) 4 Jun	19 Jul	Total Yield	4 Jun	19 Jul		(ii) 24 Jun	5 Aug		24 Jun	5 Aug	
Deborah	5.9	3.5	9.4	70	60	66	10.2	1.7	11.9	61	68	-62
Taptoe (T) PRG	6.8	4.0	10.8	71	61	67	9.4	2.1	11.5	57	72	60
Animo PRG	6.2	2.8	9.0	67	60	65	8.7	1.9	10.6	61	70	63
Scots timothy	7.4	2.8	10.2	68	59	66	8.4	2.8	11.2	58	65	60
S 26 cocksfoot	3.5	3.9	7.4	69	55	62	5.2	2.8	8.0	58	62	59
S 143 cocksfoot	3.8	3.4	7.2	68	54	61	5.6	2.5	8.1	59	64	61

8200096

BROMEGRASS ANALYSIS

972

Nitrogen Content %	Ash Content %	Digestibility Organic Matter %	Digestibility Dry Matter %	Pepsin Soluble Dry matter %	Pepsin Soluble Organic Matter %	Approx. Sucrose
	8	92	60.4	29.7	25.6	10%
			61.0	36.6	29.3	15%

8200096

TLS/JKR
16.9.74

y stage

8200096

QUALITY ANALYSES ON SAMPLES

DERIVED FROM 1973 HARVEST

Variety	Crude Protein	D-Value
Deborah Bromegrass (Bromus carinatus)	16.5	67
Saratoga Bromegrass (Bromus inermis)	13.4	59.4
S26 Cocksfoot	13.7	55.2

TIE/JKR
31.7.74

SVERIGES UTSÄDESFÖRENING

Försökets benämning	Skördeår	Insättningsår	Jordomr	Lab	Nummer
FODERLOSTA	GRUPP A	1978	1977	M	337

Försöksplats	
SV. UTSÄDESFÖRENING	SVALÖV

Groda	Jordart	Datum	Grundgödsling, kg/ha	N	P	K	P-areal	Ant. P. P
VALL I	MMH MORÄNLÄTLERA.						10.0 m ² (7.14 x 1.40)	4
Förbruk	pH	P-AL		2.09	300	KALKSALPETER		47
VÄRKORN	T	K-AL		3.04	900	KALISUPER 7-13.		63 117
Sädd	S	Mg-AL		8.08	350	SUPRASALP. N. 28		98
11.05		Cu-AL			400	KALKSALPETER		62

Försöksled	TS	TS	TS	REL.	TS	TS	GRAD	GRAD						
	DT/HA	DT/HA	T/HA	TAL.	o/o	o/o	HÖST	VAR						
Datum	SK 1	SK 2	KÖRD		SK 1	SK 2								
SV FRIGGA	11.9	25.3	37.2	100	26.6	16.2	7	80						
SV SVAJA	16.7	25.2	41.9	113	26.5	15.8	7	80						
DEBORAH (ENGL.)	16.3	31.9	48.2	136	24.3	16.6	9							
SMOOTH KL-105 (USA)	16.9	23.4	40.3	108	27.3	16.5	7	pi						
MEDELFEL, PROCENT			4.7											
VARIATION MELLAN LEO			*											

DEC. 1978

Handwritten signature
 Avdelningsföreståndare / Föreläsningsföreståndare / Föresättningsledare

8200086

777

PACIFIC SEED PRODUCTION COMPANY

121 S.W. 2nd, P.O. BOX 1141, ALBANY, OREGON 97321
(5.03) 928-5868 TELEX: 151-722

27th April, 1982

Plant Variety Protection Office
National Agricultural Library Building
Beltsville
MD 20705

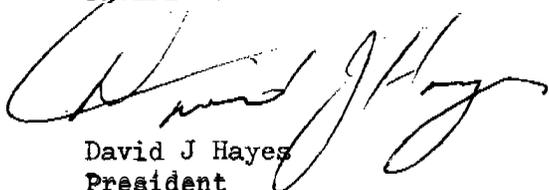
Attn: Mr Larry Dosier

Dear Larry, .

Further to our telephone conversation of today's date I enclose herewith some additional background material on **Deborah** Sweet Bromegrass indicating its differences with Cucamonga which is why as discussed we do not want it classified as California **Brome.**

If you need more detail on this please let me know.

Sincerely,
PACIFIC SEED PRODUCTION COMPANY



David J Hayes
President

DUNNS

PLAM BREEDERS
SEED SUPPLIERS



SEED AND GRAIN LIMITED

NETHERHAMPTON ROAD, HARNHAM, SALISBURY, WILTSHIRE SP2 8PT.
Telephone Salisbury (0722) 6661 Telex 47581

Our ref: TIE/JE

4 February 1982

Pacific Seed Production Company
121 SW 2nd Street
PO Box 1141
Albany
Oregon 97321
USA

Attention: David Hayes

Dear David

A) DEBORAH

Thank you for your information and the relevant document regarding the Bromus carinatus variety, CUCAMONGA. We have asked Markus to bring to the attention of the USDA authorities the substantial differences between DEBORAH and CUCAMONGA. To help your own judgement, I will repeat here the relevant details:

DIFFERENCES

DEBORAH

- 1) Perennial - 3 years plus
- 2) Relatively slow to establish compared with an annual
- 3) Dark greyish-green
- 4) Not susceptible to smut
- 5) Long growing period (March - October)
- 6) $2n = 56$
- 7) Not suited to self seeding

CUCAMONGA

- 1) Winter annual
- 2) Rapid development and early maturing
- 3) Pale green
- 4) Susceptible to smut
- 5) Short growing period
- 6) $2n = 3$
- 7) Self seeding

SIMILARITIES

- 1) Long, flexuous panicle
- 2) Sheaths and leaves sparsely pilose to nearly glabrous
- 3) Awns long

B) The Phalaris samples (Reed Canary Grass) have arrived safely, and we shall use them in the Spring sowing for observation. Whether we consider that our material is in a sufficiently advanced state to submit it for trials in the USA we shall discuss in the near future, and I shall let you know the outcome.

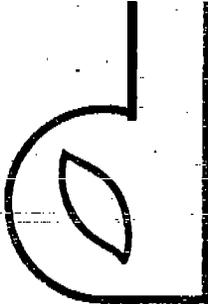
Yours sincerely

Dr. T. E. ...

General Manager

23

DUNNS
PLANT BREEDERS
SEED SUPPLIERS



SEED AND GRAIN LIMITED

NETHERHAMPTON ROAD, HARNHAM, SALISBURY, WILTSHIRE SP2 8PT.
Telephone Salisbury (0722) 6661 Telex 47581

Pacific Seed Production Co.,
P.O.- Box 1141;
121 S.W. 2nd Street',
Albany,
Oregon,
97321 U.S.A.

24th August, 1982.

Attention: Mr. D. Hayes;

Further to our recent negotiations, effective 5th March, 1982, Dunns Seed and Grain Ltd., of 20 Manvers Street, Bath, UK, hereby transfers ownership with all its legal rights and obligation - of the variety Deborah Bromus Carinatus Sweet Bromegrass, to Pacific Seed Production Company, of 121 S.W. 2nd Street, P.O. Box-1-141, Albany, Oregon, 97321 U.S.A., within the framework of the financial arrangements made between the parties regarding the transfer. In witness whereof the parties have caused this agreement to be executed on the day of first hereunder written.

Yours faithfully,

*For Pacific Seed Production Co.
David J. Hayes, President*

Richard Appleby

IN THE PRESENCE OF:

John Chisham

Solicitor of

*23 Pickwick Rd.
Covsham, Wiltshire.*



**Department of Commerce
Corporation Division**

Certificate of Amendment

OF

PACIFIC SEED PRODUCTION CO.

The undersigned, as Corporation Commissioner of the State of Oregon, hereby certifies that one original and one true copy of Articles of Amendment to the Articles of Incorporation, duly signed and verified pursuant to the provisions of the Oregon BUSINESS Corporation Act, have been received in this office and are found to conform to law.

ACCORDINGLY, the undersigned as such Corporation Commissioner, and by virtue of the authority vested in him by law, hereby issues this Certificate of Amendment to the Articles of Incorporation, and attaches hereto a true copy of the Articles of Amendment.

DAEHNFELDT INCORPORATED

In Testimony Whereof, *I have hereunto set my hand and affixed hereto the seal of the Corporation Division of the Department of Commerce of the State of Oregon this 27TH day of FEBRUARY, 1984.*

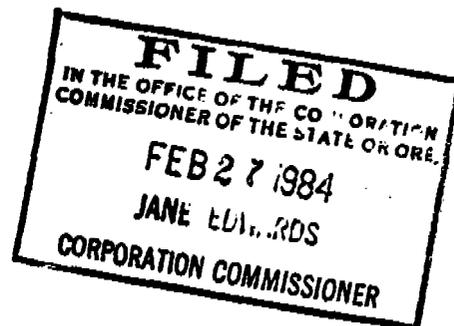


Jane Edwards

Corporation Commissioner

By *Stanley Smith*

ARTICLES OF AMENDMENT
TO
ARTICLES OF INCORPORATION
OF
PACIFIC SEED PRODUCTION CO.



Pursuant to the provisions of ORS 57.370, the undersigned corporation execute the following **Articles of** Amendment to its Articles of Incorporation:

1. The name of the corporation prior to this amendment is: Pacific Seed Production Co.
2. The **following amendment** to the Articles of Incorporation was adopted by the shareholders on the 20th day of January, 1984:

ARTICLE I (Amended)

The name of this corporation is **DAEHNFELDT INCORPORATED** and its duration shall be perpetual.

3. The total number of shares which, at the time of adoption of this amendment, were outstanding was **40**; entitled to vote thereon was **40**; voting for the amendments: **40**; voting against the **amendments: 0**.

4. No shares of any class of **stock** were entitled to, -vote on such amendment as a class.

The amendment effected no change in the amount of stated capital.

We, the undersigned, declare under the penalties of perjury that we have examined the foregoing and to the best of our knowledge and belief, it is true, correct and complete.

DATED this 20th day of January, 1984.

DAEHNFELDT INCORPORATED

By: *David Hayes*
President

Carl Edwards
Secretary